DRISI

Caltrans Division of Research, Innovation and System Information

Research Results

Telecommunications Training for Rural Engineers and Technicians

Hands-on courses provide skills for designing and maintaining reliable transportation systems in rural communities

Rural

DECEMBER 2014

Project Title:
Professional Capacity Building for Communication Systems Phase II

Task Number: 1746

Start Date: June, 27, 2011

Completion Date: October, 31, 2013

Product Category: New training

Task Manager:
Jose Perez
Transportation Engineer, Electrical
jose.perez@dot.ca.gov

WHAT WAS THE NEED?

As various telecommunications technologies, like fiber optics, become more viable for remote locations, engineers and technicians in rural areas need to get familiar with the advances in transportation communication systems and the particular challenges that rural transportation communications face. Many engineers and technicians have relatively little experience with the myriad of technologies for designing and maintaining reliable and robust communication networks for rural Intelligent Transportation Systems (ITS) field equipment. Understanding which communication technologies exist, the terminology and concepts, how the technology can be used effectively, and the pros and cons of various options, helps engineers distinguish what vendors are offering and whether the offerings are realistic.

WHAT WAS OUR GOAL?

The goal was to develop and conduct specialized hands-on telecommunications training for rural engineers and technicians to provide the skills needed for designing and maintaining reliable and robust communication networks for rural ITS field equipment.

Fiber optics training course

Caltrans

Caltrans provides a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

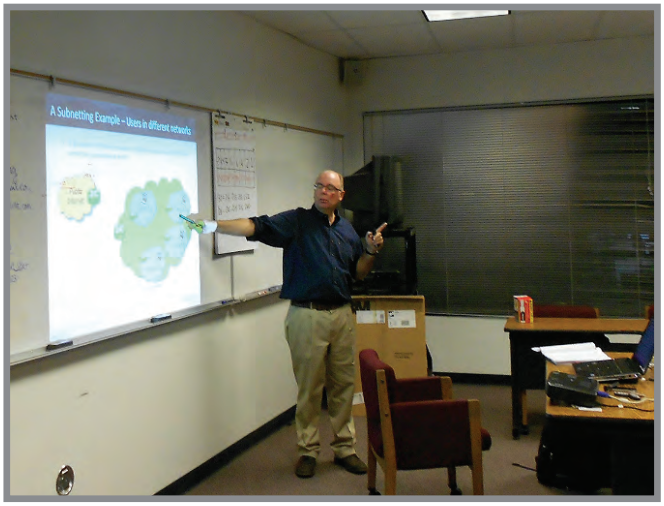
Telecommunications Training for Rural Engineers and Technicians

Research Results

WHAT DID WE DO?

Caltrans, in partnership with the Montana State University Western Transportation Institute, researched, developed, and delivered a comprehensive training curriculum to expand the professional capacity of rural ITS engineers and technicians. Led by subject matter experts, the training provided hands-on practical education centered on understanding the various communication technologies available and how to best select and implement these technologies, particularly in a rural environment.

One course focused on installing, maintaining, testing, and troubleshooting fiber-optic networks. It addressed available product options, typical specifications for such products, and the advantages and disadvantages. The other course featured the fundamentals of Internet Protocol (IP) networking.



Hands-on Ethernet and TCP/IP fundamentals training course

WHAT WAS THE OUTCOME?

Participants came from seven Caltrans districts to address rural transportation challenges. In the context of real-world and immediate concerns, they became familiar with the terminology and concepts needed to communicate with vendors, colleagues, and other professionals to minimize misunderstandings. The participants provided positive feedback in gaining the knowledge and skills needed to implement communications systems and troubleshoot IP networking. During the training, attendees also had the opportunity to meet other ITS engineers and learn what kind of equipment is being used and how it is deployed in similar areas. Additional specialized training in other ITS areas by subject matter experts is recommended for the next phase of this project.

WHAT IS THE BENEFIT?

If engineers do not have fundamental knowledge of communication technologies available in the market, they cannot make informed decisions when assessing vendors for reliable ITS communications systems. After this training, Caltrans engineers and technicians who attended can better assess vendors as well as design, implement, and maintain reliable and robust ITS communication systems in rural and remote areas.

LEARN MORE

To view the complete report:
www.dot.ca.gov/research/researchreports/reports/2013/final_report_task_1746.pdf

For more information about the training, visit:
www.westernstates.org/projects/PCB/default.html